GPG FINDINGS

07

DECEMBER 2013

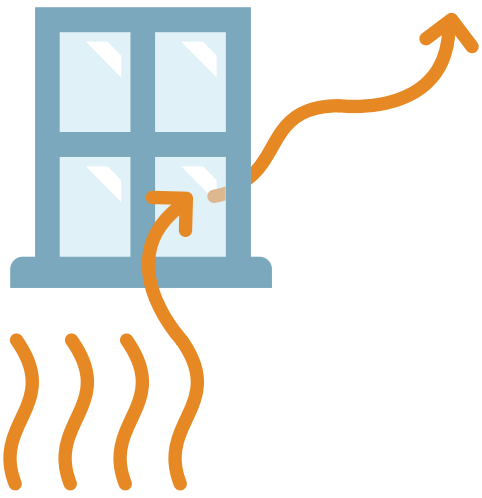
HIGHLY INSULATING WINDOW PANEL RETROFIT

OPPORTUNITY

How much energy is lost through inefficient windows in commercial buildings?

23% ENERGY

USED TO HEAT & COOL BUILDINGS IS LOST THROUGH INEFFICIENT WINDOWS[1]



TECHNOLOGY

How do Hi-R Window Panel Retrofits save energy?

IMPROVE THERMAL PERFORMANCE

WITH LOW-E WINDOW PANELS

PRE-MANUFACTURED

LIKE STORM WINDOWS; SIMPLIFYING INSTALLATION

M&V

Where did Measurement and Verification occur?

LAWRENCE BERKELEY NATIONAL LABORATORY assessed the impact of Hi-R panel retrofits on heat-load reduction and employee comfort in a Provo, Utah federal office building.

RESULTS

How did Hi-R Window Panel Retrofits perform in M&V?

41%

HEATING SAVINGS IN WINTER[2]

ESTIMATED SAVINGS FOR ENTIRE BUILDING HEATING AND COOLING: 11%[3]

QUICK

INSTALLATION[4]

IMPROVED VISUAL AND THERMAL COMFORT[5]

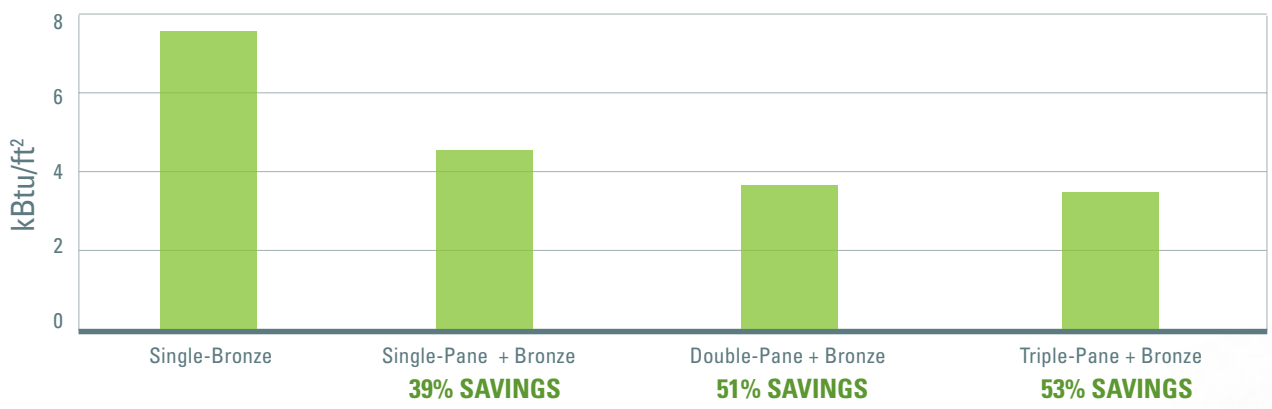
<9

YEARS

PAYBACK FOR TRIPLE-PANE; DOUBLE-PANE WILL BE SHORTER[6]

Savings Diminish with Triple-Pane Hi-R Window Panel Retrofit

COMFEN results compared to base configuration of single pane with bronze film



DEPLOYMENT

Where does M&V recommend deploying Hi-R Window Panel Retrofits?

BUILDINGS IN COLD CLIMATES

WITH SINGLE-PANE WINDOWS

Double-pane retrofits recommended, as triple-pane offers diminishing returns
Site-specific evaluation is critical

[1]Highly Insulating Window Panel Attachment Retrofit. Charlie Curcija, Howdy Goudey, Robin Mitchell, Erin Dickerhoff (LBNL), December 2013, p.3 [2]Ibid, p.26 [3]Ibid, p.39 [4]Ibid, p.7 [5]Ibid, p.26,35 [6]Ibid, p.2